



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,498	12/19/2001	Pierre Aimar	03715.0101	8486

7590

02/19/2003

Anthony C. Tridico  
Finnegan, Henderson, Farabow,  
Garrett & Dunner, L.L.P.  
1300 I Street, N.W.  
Washington, DC 20005

EXAMINER

MENON, KRISHNAN S

ART UNIT

PAPER NUMBER

1723

DATE MAILED: 02/19/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/021,498

Applicant(s)

AIMAR ET AL.

Examiner

Krishnan S Menon

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5. 6) ☐ Other:

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by H. Ohya et al

(XP-001023196: "Proposal of an integrated system for the complete usage of sea water",

NIPPON KAISUI GAKKAISHI, vol 49, no. 4, 1995 pages 195-201)

Ohya (XP-196) teaches a process for depleting monovalent cations from water by subjecting to RO, and then subjecting the RO retentate to electrodialysis, and recovering water depleted in monovalent cations (see fig 1.) as in instant claim 1. The recovery of the divalent cations is more than 65% (by material balance from the concentrations and flow rates to the ED unit given in Fig 1) and yield of water depleted in monovalent cations is about 100% overall (see fig 1) as in instant claim 3.

2. Claims 1 and 6-8 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Abe et al (US 6,187,201 B1).

Abe (201) teaches a process for depleting monovalent cations from water comprising subjecting the water to reverse osmosis (5-fig 1), retentate of the RO subjected to electrodialysis (7-

Art Unit: 1723

fig 1) and recovering depleted water in monovalent cations (col 2 lines 18-40) as in instant claim 1.

The sodium content in the water depleted in monovalent cations is less than 20 mg/L (table I) as in instant claim 6, and the pressure for the RO is less than 10 MPa or 5 MPa (col 3 lines 44-47) as in instant claim 7 and 8.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. Claims 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohya (XP-196) in view of Conger (US 4,141,825)

Ohya teaches all the limitations of claims 2 as in claim 1 above, except directly adding the water depleted in monovalent cations to the permeate from the RO. Conger (825) teaches mixing RO permeate water and electrodialysis product water (col 4 lines 3-14). It would be obvious to one of ordinary skill in the art at the time of invention to add the water depleted in monovalent cations

Art Unit: 1723

from the electro dialiser to the permeate of the RO in the teaching of Ohya (XP-196) similar to the teaching of Conger (825) for making potable water low in sodium.

4. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe (201) in view of Conger (825).

Abe teaches all the limitations of the instant claims as in claim 1 above, except the salt concentrations of the feed (tap) water. Conger (825) teaches the concentrations of feed (slightly brackish) waters below 3g/L ppm (col 3 lines 1-10). It would also be obvious to one of ordinary skill in the art at the time of invention that the "tap water" specified by Abe (col 4 lines 35-38) would also have total ions about 3g/L or less, similar to what is taught by Conger, and the sodium content would be about 150 mg/L or less, because tap water (drinkable) would have salt concentrations less than that of brackish water as taught by Conger.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. JP 57-171485 and JP 52-089576 also teach processes for making potable water by passing RO retentate through electro dialysis.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 703-305-5999. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 703-308-0457. The fax phone numbers for the organization

Application/Control Number: 10/021,498


Page 5

Art Unit: 1723

where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Krishnan S. Menon  
Patent Examiner  
February 10, 2003

  
W. L. WALKER  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700